ADDITIONAL OBSERVATIONS ON PLUMATELLA REPENS (L.) (A FRESH-WATER BRYOZOAN) II. A NOTE ON THE SPECIAL FORM OF FLOATOBLAST

BULLETIN OF THE MARINE BIOLOGICAL STATION OF ASAMUSHI,
VOL. XIV, NO. 1. 1970

ADDITIONAL OBSERVATIONS ON *PLUMATELLA REPENS* (L.) (A FRESH-WATER BRYOZOAN) II. A NOTE ON THE SPECIAL FORM OF FLOATOBLAST[1)]

By

MAKOTO TORIUMI
鳥 海 衷

Marine Biological Station, Tôhoku University, Asamushi, Aomori City

1. INTRODUCTION

One doubtful material belonging to the genus Plumatella was collected from Chûzenji-ko by Dr. Nobuo Sasaki and forwarded to the writer for identification in 1938. The floatoblasts resembled that of *P. repens* in shape, but the naked part of the capsule on the so-called dorsal side was narrow in comparison with the normal floatoblast of *P. repens*. In this respect, they resembled those of *P. emarginata*. Such material as this or the special floatoblast alone have not been found in Japan thereafter till 1968.

A few floatoblasts of this form were found among the floatoblasts of the Plumatellas from the reservoir Yohee-numa in Sendai City, and the results of the observation made on this material are reported in this paper.

Acknowledgements are due to Professor Antonio Vigano, Instituto di Zoologia e Idrobiologia dell' Universita di Perugia, Italy, for his kindness in sending the valuable samples to the writer, and also to Dr. Zen-ichiro Hoshino, Marine Biological Station of the Tôhoku University, for his assistance in the present study.

2. MATERIAL FROM CHÛZENJI-KO

The material was collected on December 5th, 1935. The note by the writer concerning it was given in 1938 as follows;

Colony aged, grown on a water plant. Ectocyst colorless and transparent. Zooecia entirely repent. Keel and septum absent. All the polypides degenerated. Floatoblasts 0.37–0.39 mm in length and 0.28–0.29 mm in width. Ratio of length to width 1.29 (?)–1.41. Suture of float at extremity. Naked part of capsule on

1) Contributions from the Marine Biological Station, Tôhoku University, Aomori City, No. 381

dorsal side narrow in comparison with normal floatoblast of *P. repens*.. Sessoblasts 0.49–0.52 mm in length, and 0.38–0.42 mm in width. Lamella stout, with clear reticulation. Irregular serration present on its margin. Capsule of sessoblast with mammillation.

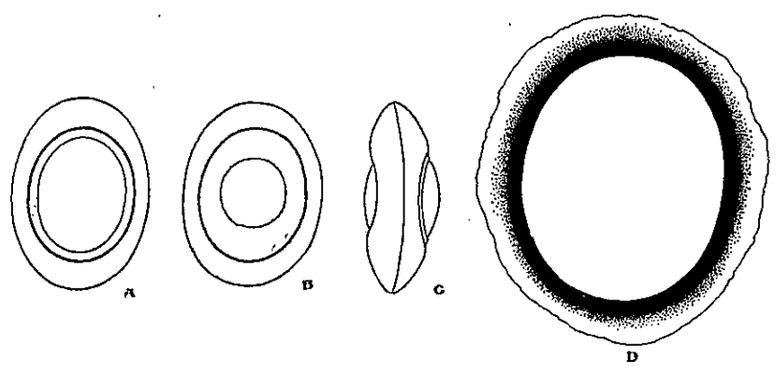

Fig. 1. Statoblasts of the material from Chûzenji-ko.
A-floatoblast, ventral view ×80 B-floatoblast, dorsal view ×80 C-the same, side view D-sessoblast ×80

No observation was made on the reticulation of the capsule of the floatoblast at that time. The measurements of floatoblast, position of suture of float and the features of the sessoblast agree with those of *P. repens*. It seems that the material belongs to *P. repens* and that the floatoblast is a special one of this species although the narrow naked part of the capsule somewhat resembles that of *P. emarginata*.

3. OBSERVATION ON THE MATERIAL YOHEE-NUMA

A few floatoblasts were collected on November 27th, 1968 from the reservoir Yohee-numa by the writer. They agree with the typical floatoblast of *P. repens* in the features except for the narrow naked part of the capsule.

Whether this form belongs to *P. repens* an observation should be first made. If the material belongs to this species, the following points should be observed as the next step of study on this floatoblast.

(a) Whether all the intraspecific groups of this species are able to produce this form under a certain environmental condition.

(b) Whether the special form is always produced in a special intraspecific group.

(c) Whether this form is produced in a special intraspecific group under a certain condition.

In the observations, the floatoblasts used were from Yohee-numa, Tsuta-numa, and the two reservoirs at Asamushi and Morigô at Rifu-chô near Sendai.

The procedure of rearing was the same as that reported in the previous paper. The floatoblasts germinated on December 7th, and the newly formed floatoblasts of the colonies were examined on December 24th, 1968.

(a) All the floatoblasts produced from the colonies which originated from the normal floatoblasts are of normal form. The rearing was made thereafter using normal ones, no special form was found among the colonies examined on March 3rd, July 6th, and on September 17th, 1969.

All the colonies collected from Asamushi, Morigô and Tsuta-numa also produced only normal floatoblasts. The reared materials from the various places written in the previous report produced the normal ones in any season.

(b) The colony originated from the special floatoblast agreed with those of the typical *P. repens* reared at the same time in all the features. The majority of the floatoblasts in this colony were typical of *P. repens*, but the remaining floatoblasts were those of the special form as shown in Fig. 2.

The special floatoblats were somewhat longer than the typical one in shape, but except for the shape and the narrow part of the capsule on the dorsal side, they agreed with the typical one in all the features. These facts prove that the special floatoblasts are the special ones of *P. repens*. From the results of (a) and

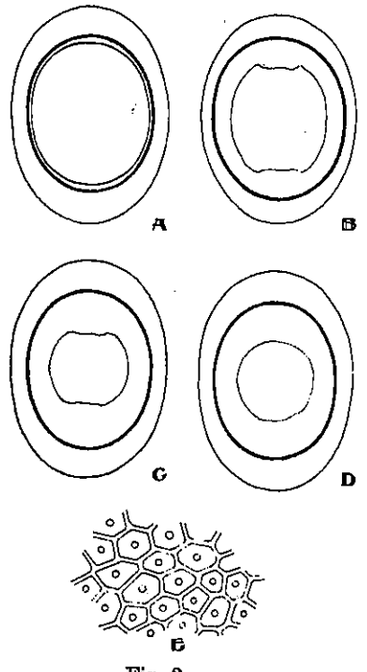

Fig. 2.

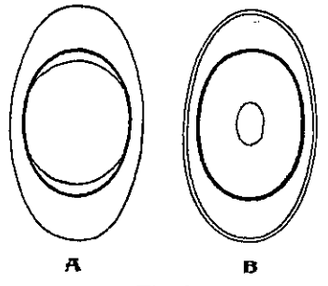

Fig. 3.

Fig. 2. Floatblasts of the Yohee-numa C material and reticulation of the capsule. These floatoblasts were produced in one colony. A-normal floatoblast, ventral view ×80 B-normal floatoblast, dorsal view ×80 C,D-two special floatoblasts in dorsal view. The central naked part of the capsule is narrower than that of the normal floatoblast. E-reticulation of a capsule at the central part ×460

Fig. 3. Two floatoblasts of *P. emarginata* reared together with the special material of *P. repens*.

(b), it should be considered that the special form is produced from a special intraspecific group.

(c) The special floatoblasts were present at the peripheral part of the colony and the immature floatoblasts, although they were a few in number, were of special form. From this fact, it is considered that this special form is produced under a certain condition.

Thus the special intraspecific group is present in *P. repens* and the colonies of this group produce the special floatoblasts under a certain condition.

4. COMPARISON OF THE SPECIAL FORM AND THE FLAOTOBLAST OF *P. emarginata*.

The special floatoblasts were compared with the floatoblasts of *P. emarginata* produced under the same rearing condition. The floatoblasts of the latter are

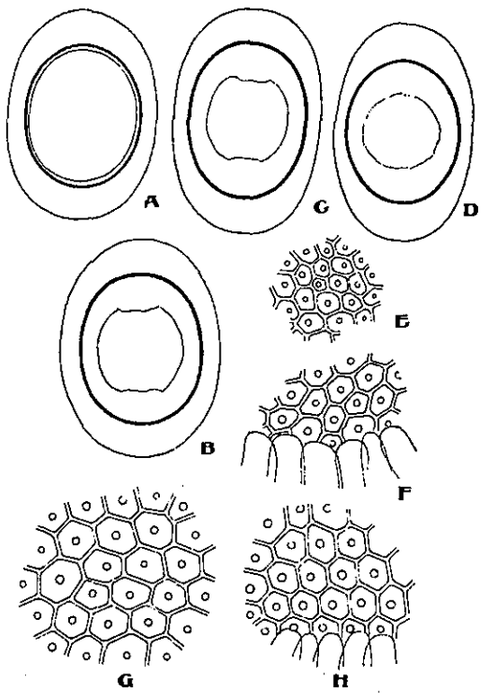

Fig. 4. Floatoblasts of Italian material.
A-floatoblast, ventral view. The shape is identical with the normal form of the floatoblast in *P. repens* ×80 B-the same, dorsal view. The shape of this floatoblast is identical with that of *P. repens* but the naked part is somewhat narrower than that of the normal floatoblast of this species. × 80 C, D-floatoblasts, dorsal view. The shape of (D) resembles that of *P. emarginata*, but the capsule has reticulation on its surface. ×80
E-reticulation at the central part of a capsule on ventral side. ×460
F-the same at the peripheral part. ×460
G-the same at the central part on dorsal side. ×460 H-the same at the peripheral part. ×460.

larger than those of the former and differ from the other in shape as shown in Fig. 3.

The naked part of the capsule on the dorsal side is smaller than that of the former, and the suture of the float is present on the dorsal side. No reticulation is seen on the capsule in *P. emarginata*, and the floatoblasts of the two species may be distinguished easily in these features.

5. MATERIAL FROM ITALY

Late in July 1969, a doubtful material found in Italy was received from Professor Vigano. The material was dry and the features of the colony, the zooecia and the polypides were not examined. The reticulation of the floatoblast agrees with that of the Japanese special form as shown in Fig. 4. Some floatoblasts are very long in shape. The short floatoblasts agree with those of the special intraspecific group of *P. repens*, but long ones resemble those of *P. emarginate* in shape (Fig. 4, D). Unless all the features of this group are investigated in detail by rearing, it cannot be said that this group is an intraspecific group of *P. repens*.

6. SUMMARY

1. Special form of floatoblasts with narrow naked part of capsule on the dorsal side were obtained from Chûzenji-ko and Yohee-numa.

2. They are produced from the special intraspecific group of *P. repens*.

3. This intraspecific group produces a special form of floatoblast under a certain condition.

4. The floatoblasts of this group differ from those of *P. emarginata* produced under the same condition in many features.

5. The floatoblasts of the Italian material resembled those of the special form of *P. repens* in some features.